

IN THE CLAIMS

Claim 1 has been amended as follows:

1. (Currently amended) A method for speed-resolved flow measurement during a movement cycle in magnetic resonance tomography, comprising the steps of:

acquiring a magnetic resonance tomography overview image of a selected region of a living subject exhibiting a movement cycle, said selected region encompassing moving tissue moving through said selected region and non-stationary tissue surrounding said moving tissue;

displaying the overview image on a screen;

during said movement cycle, quasi-simultaneously acquiring data for an anatomical image series of the said selected region with the images in said series respectively showing said non-stationary tissue in successive, different positions, and data for a speed-resolved image series of a moving region, that encompasses said moving tissue, identified within [[a]] said selected region, with respective images in said anatomical image series having a time correspondence with respective images in said speed-resolved image series; and

generating and displaying said anatomical image series and said speed-resolved image series on said screen with each image in said speed-resolved image series being integrated in the time-corresponding image of the anatomical image series.

Claim 2 has been amended as follows:

2. (Currently Amended) A method as claimed in claim 1 comprising segmenting said moving region identified within said selected region automatically during acquisition of said speed-resolved image series.

Claim 3 has been amended as follows:

3. (Currently Amended) A method as claimed in claim 1 comprising segmenting said moving region identified within said selected region immediately after acquisition of said speed-resolved image series.

4. (Original) A method as claimed in claim 1 comprising color-coding the images in said speed-resolved image series.

5. (Original) A method as claimed in claim 1 comprising displaying said anatomical image series and said speed-resolved image series on said screen immediately after acquiring said data for said anatomical image series and said data for said speed-resolved image series.

6. (Original) A method as claimed in claim 5 comprising displaying said anatomical image series and said speed-resolved image series as a movie on said screen.

Claim 7 has been amended as follows:

7. (Currently Amended) A method as claimed in claim 1 comprising manually identifying, on said screen, said moving region within said selected region.

Claim 8 has been amended as follows:

8. (Currently Amended) A method as claimed in claim 1 comprising identifying a plurality of moving regions within said selected region during the movement cycle, and acquiring data for a speed-resolved image series for each of said regions.

9. (Previously Presented) A method as claimed in claim 1 comprising acquiring said data for said anatomical image series and said data for said speed-resolved image series for a time, as said movement cycle, selected from the group consisting of a breathing cycle of said subject and a heart cycle of said subject.

10. (Original) A method as claimed in claim 1 comprising acquiring said data for each of said anatomical image series and said speed-resolved image series at approximately 20 images per movement cycle.

Claim 11 has been amended as follows:

11. (Currently amended) A magnetic resonance tomography apparatus comprising:

a magnetic resonance scanner adapted to receive a living subject therein,
said living subject exhibiting a movement cycle, said selected region encompassing moving tissue moving through said selected region and non-stationary tissue surrounding said moving tissue;

a control computer for operating said magnetic resonance scanner;

a display screen connected to said control computer; and

said control computer operating said magnetic resonance scanner to acquire
a magnetic resonance tomography overview image of [[a]] said selected region of [[a]] the living subject, and said computer causing the overview image to be displayed on said screen, and to operate said magnetic resonance during said movement cycle to quasi-simultaneously acquire data for an anatomical image series of the selected region with the images in said series respectively showing said non-stationary tissue in successive, different positions, and data

for a speed-resolved image series of a moving region, that encompasses said moving tissue, identified within ~~[[a]]~~ said selected region ~~during the movement cycle~~, with respective images in said anatomical image series having a time correspondence with respective images in said speed-resolved image series, and generating and displaying said anatomical image series and said speed-resolved image series on said screen with each image in said speed-resolved image series being integrated in the time-corresponding image of the anatomical image series.

Claim 12 has been amended as follows:

12. (Currently amended) A computer-readable medium encoded with a data structure, said computer-readable medium being loadable into a control computer of a magnetic resonance tomography apparatus, including a magnetic resonance scanner operated by the control computer and a display screen connected to the control computer, data structure causing said control computer to:

acquire a magnetic resonance tomography overview image of a selected region of a living subject exhibiting a movement cycle said selected region encompassing moving tissue moving through said selected region and non-stationary tissue surrounding said moving tissue;

display the overview image on said screen,

during said movement cycle, quasi-simultaneously acquire data for an anatomical image series of the said selected region with the images in said series respectively showing said non-stationary tissue in successive, different positions, and data for a speed-resolved image

series of a moving region identified within a selected region during the movement cycle, with respective images in said anatomical image series having a time correspondence with respective images in said speed-resolved image series, and

display said anatomical image series and said speed-resolved image series on said screen with each image in said speed-resolved image series being integrated in the time-corresponding image of the anatomical image series.